

system **112** and converts the detected contact into interaction with user-interface objects (e.g., one or more soft keys, icons, web pages or images) that are displayed on the touch screen. The touch screen **112** may be used to implement virtual or soft buttons and/or a keyboard. In an exemplary embodiment, a point of contact between a touch screen in the display system **112** and the user corresponds to a finger of the user.

**[0030]** The touch screen in the display system **112** may use LCD (liquid crystal display) technology, or LPD (light emitting polymer display) technology, although other display technologies may be used in other embodiments. The touch screen in the display system **112** and the display controller **152** may detect contact and any movement or breaking thereof using any of a plurality of touch sensing technologies now known or later developed, including but not limited to capacitive, resistive, infrared, and surface acoustic wave technologies, as well as other proximity sensor arrays or other elements for determining one or more points of contact with a touch screen in the display system **112**. A touch-sensitive display in some embodiments of the display system **112** may be analogous to the multi-touch sensitive tablets described in the following U.S. Pat. Nos.: 6,323,846 (Westerman et al.), 6,570,557 (Westerman et al.), and/or 6,677,932 (Westerman), and/or U.S. Patent Publication 2002/0015024A1, each of which is hereby incorporated by reference. However, a touch screen in the display system **112** displays visual output from the portable device **100**, whereas touch sensitive tablets do not provide visual output. The touch screen in the display system **112** may have a resolution in excess of 100 dpi. In an exemplary embodiment, the touch screen in the display system has a resolution of approximately 168 dpi. The user may make contact with the touch screen in the display system **112** using any suitable object or appendage, such as a stylus, a finger, and so forth. In some embodiments, the user interface is designed to work primarily with finger-based contacts and gestures, which are much less precise than stylus-based input due to the larger area of contact of a finger on the touch screen. In some embodiments, the device translates the rough finger-based input into a precise pointer/cursor position or command for performing the actions desired by the user.

**[0031]** A touch-sensitive display in some embodiments of the display system **112** may be as described in the following applications: (1) U.S. patent application Ser. No. 11/381,313, "Multipoint Touch Surface Controller," filed on May 2, 2006; (2) U.S. patent application Ser. No. 10/840,862, "Multipoint Touchscreen," filed on May 6, 2004; (3) U.S. patent application Ser. No. 10/903,964, "Gestures For Touch Sensitive Input Devices," filed on Jul. 30, 2004; (4) U.S. patent application Ser. No. 11/048,264, "Gestures For Touch Sensitive Input Devices," filed on Jan. 31, 2005; (5) U.S. patent application Ser. No. 11/038,590, "Mode-Based Graphical User Interfaces For Touch Sensitive Input Devices," filed on Jan. 18, 2005; (6) U.S. patent application Ser. No. 11/228,758, "Virtual Input Device Placement On A Touch Screen User Interface," filed on Sep. 16, 2005; (7) U.S. patent application Ser. No. 11/228,700, "Operation Of A Computer With A Touch Screen Interface," filed on Sep. 16, 2005; (8) U.S. patent application Ser. No. 11/228,737, "Activating Virtual Keys Of A Touch-Screen Virtual Keyboard," filed on Sep. 16, 2005; and (9) U.S. patent application Ser. No. 11/367,749, "Multi-Functional Hand-Held Device," filed on Mar. 3, 2006. All of these applications are incorporated by reference herein.

**[0032]** The other input controller(s) **154** may be coupled to other input/control devices **114**, such as one or more buttons,

a keyboard, infrared port, USB port, and/or a pointer device such as a mouse. The one or more buttons (not shown) may include an up/down button for volume control of the speaker **142** and/or the micro-phone **144**. The one or more buttons (not shown) may include a push button. A quick press of the push button (not shown) may engage or disengage a lock of the touch screen **112**. A longer press of the push button (not shown) may turn power to the device **100** on or off. The user may be able to customize a functionality of one or more of the buttons.

**[0033]** In some embodiments, the device **100** may include circuitry for supporting a location determining capability, such as that provided by the global positioning system (GPS). In some embodiments, the device **100** may be used to play back recorded music stored in one or more files, such as MP3 files or AAC files. In some embodiments, the device **100** may include the functionality of an MP3 player, such as an iPod (trademark of Apple Computer, Inc.). In some embodiments, the external port is a multi-pin (e.g., 30-pin) connector that is the same as, or similar to and/or compatible with the 30-pin connector used on iPod devices.

**[0034]** The device **100** also includes a power system **137** for powering the various components. The power system **137** may include a power management system, one or more power sources (e.g., battery, alternating current (AC)), a recharging system, a power failure detection circuit, a power converter or inverter, a power status indicator (e.g., a light-emitting diode (LED)) and any other components associated with the generation, management and distribution of power in portable devices. The device **100** may also include one or more external ports **135** for connecting the device **100** to other devices.

**[0035]** The memory controller **120** may be coupled to memory **102** with one or more types of computer readable media. Memory **102** may include high-speed random access memory and/or non-volatile memory, such as one or more magnetic disk storage devices, one or more optical storage devices, and/or flash memory. Memory **102** may store an operating system **122**, such as Darwin, RTXC, LINUX, UNIX, OS X, WINDOWS, or an embedded operating system such as VxWorks. The operating system **122** may include procedures (or sets of instructions) for handling basic system services and for performing hardware dependent tasks. Memory **102** may also store communication procedures (or sets of instructions) in a communication module **124**. The communication procedures may be used for communicating with one or more additional devices, one or more computers and/or one or more servers. Memory **102** may include a display module (or a set of instructions) **125**, a contact/motion module (or a set of instructions) **126** to determine one or more points of contact and/or their movement, and a graphics module (or a set of instructions) **128**. The graphics module **128** may support widgets, that is, modules or applications with embedded graphics. The widgets may be implemented using JavaScript, HTML, or other suitable languages.

**[0036]** Memory **102** may also include one or more applications **130**. Examples of applications include email applications, text messaging or instant messaging applications, web browsers, memo pad applications, address books or contact lists, and calendars.

**[0037]** Also in memory **102** are one or more dictionaries **132** and a word recommendation module (or set of instructions) **134**. In some embodiments, a dictionary contains a list of words and corresponding usage frequency rankings. The usage frequency ranking of a word is the statistical usage